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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/619,738	07/19/2000	Victor B. Sapozhnikov	169.12-0432	2615

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EXAMINER

LAVILLA, MICHAEL E

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 10/28/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/619,738

Applicant(s)
SAPOZHNIKOV

Examiner
LA VILLA

Art Unit
1775



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above, claim(s) 13-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 2 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-12 and 20, drawn to a film structure having modulated composition, classified in class 428, subclass 626.
 - II. Claims 13-19, drawn to a method of making a film structure having modulated composition, classified in class 427, subclass 248.1+.
2. The inventions are distinct, each from the other because of the following reasons:
3. Inventions of Group I and of Group II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product can be made by photolithographic or self-assembly methods.
4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
5. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.
6. During a telephone conversation with Mr. Fairbairn on 6 August 2002 a provisional election was made with traverse to prosecute the invention of Group

I, claims 1-12 and 20. Affirmation of this election must be made by applicant in replying to this Office action. Claims 13-19 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:
8. The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
9. Claims 1-12 and 20 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The Specification appears to be directed to prophetic examples as determined from computer simulations. Applicant does not appear to provide any guidance to one of ordinary skill in the art as to how the disclosed methodology is applicable to any substrate or depositing material as presently claimed. Robbie et al. USP 6,248,422 at col. 1, line 30 through col. 2, line 11 discusses the general problem of prophetic examples in the field of growing thin films and difficulty of generically applying such theoretical teachings to actual chemical systems. Applicant's teachings do not appear to enable the breadth of the claimed invention. The claimed process limitations are not tailored to specific chemical systems. Hence, the breadth of the claimed invention does not appear to be enabled.

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

11. The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

12. Claims 1-12 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- I. Regarding Claims 1, 7, and 13 (as applies to Claim 20), it is unclear whether the claimed “at least two components” describe the lateral composition modulation structure or the overall thin film structure which could comprise a substrate on which is deposited a laterally modulated structure. Is one of the components a substrate component? It is unclear what constitutes a “deposition direction.” Is this direction measured with respect to a fixed point?
- II. Regarding Claim 2, it is unclear what is meant by the phrase “about +/- 60° to about +/- 90°.” Does this requirement mean that the deposition can all occur within the range +60 to +90 or must one occur in that range and the other in the range -60 to -90? What is the situation when there is more than two components? What is the “vertical”? The analogous rejection applies for Claims 3 and 8.

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- III. Regarding Claim 6, it is unclear what is the claimed requirement when there are three or more components.
- IV. Regarding Claims 7 and 13 (as applies to Claim 20), it is unclear what is the distinction between "deposition direction" and "deposition angle." What defines these quantities? Regarding Claim 7, it is unclear whether the requirement that the first direction "varies" from the second direction is a static or dynamic, claimed feature.
- V. Regarding Claim 10, it is unclear what is meant by the phrase "wherein each the."
- VI. Regarding Claim 11, it is unclear what is meant by the phrase "angle formed between the first and second deposition directions is about 180o." Is this the same as the difference in deposition angles?
- VII. Regarding Claim 20, it is unclear whether the claimed article is the thin film structure that is to be imparted with the laterally modulated composition or the thin film structure that has been imparted with a laterally modulated composition. Since Claim 13 is not currently under examination, the limitations of Claim 13 should be explicitly incorporated in this claim.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

14. A person shall be entitled to a patent unless –

15. (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

16. Claims 1-12 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Applicant's Admissions. Applicant's admissions at page 2, first two paragraphs, discloses that atomic scale self-assembled structures having the claimed laterally modulated composition films are known in the prior art.

17. Claims 1-12 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Applicant's Admissions. Applicant's Admissions at page 1, final paragraph, discloses that photolithographic laterally modulated composition films have been created, albeit not at atomic scale resolution.

18. Claims 1-12 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Mirecki et al. in MRS Bulletin. Mirecki et al. teaches a lateral composition modulated thin film (see Figures 1(b), 2, 5, and 6 and corresponding discussion in Mirecki et al. in MRS Bulletin).

19. Claims 1-12 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Bertero et al. USP 5,660,930. Bertero et al. teaches a multilayered magnetic medium wherein repeating units of [Pt/Co/Pt/Pd] are deposited (see Figures 1 and 2; col. 5, line 38 through col. 6, line 49; col. 8, lines 55-67; and Claims in Bertero et al.). While the deposition is described as forming a vertically

modulated film, the claimed lateral modulation is achieved by rotating by ninety degrees to obtain lateral modulation.

20. Claims 1-12 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Chambliss et al. USP 5,858,455. Chambliss et al. teaches a iron/silver laterally modulated composition deposited on a Mo substrate by deposition in two different directions (see Figures 4-8; and col. 5, line 55 through col. 7, line 2 in Chambliss '455).

21. Claims 1-12 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Iwatsuka et al. USP 5,245,471. Iwatsuka teaches a polaraizer comprised of a laterally modulated composition formed by a photolithographic technique (see Figures; col. 5, line 30 through col. 6, line 68; col. 8, line 52 through col. 9, line 45; and Claims in Iwatsuka et al.).

22. It is recognized that except, perhaps, for the rejection over Chambliss USP 5,858,455, the claimed process limitations are not disclosed in the applied prior art teachings. However, rejection is deemed appropriate, since it would appear that articles formed by the claimed process limitations would appear to encompass the prior art structures.

Conclusion

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael La Villa whose telephone number is

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(703) 308-4428. The examiner can normally be reached on Mondays and Tuesdays.

24. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (703) 308-3822. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

25. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Michael La Villa
October 21, 2002

